

sponge cast up on the shore at Worthing; and on one occasion at Torquay I found numerous specimens of *Podocerus pelagicus* (Spence Bate) in the *Halichondria panicea* in which I was searching for *Exunguia stilipes*. The Rev. A. M. Norman, in his British-Association Report (1868) of dredging among the Shetland Isles (see also Report for 1867), mentions *Anonyx tumidus* (Kröyer) as sometimes occupying the branchial sac of an Ascidian, and sometimes making a sponge its habitat. He also speaks of *Caprella linearis* (Linn.) as very abundant in Halse Hellyer, Burrafirth, among *Tubularia indivisa* and sponges, and of *Caprella lobata* (Müller) as being with the last, but scarce. Of *Atylus gibbosus* he observes that it appears to live constantly parasitic in sponges, in accordance with what has since been my own experience of its habits. It would have been better, I now think, to have referred *Dexamine antarctica*, mentioned in Mr. Carter's paper, to the closely allied genus *Atylus*, both on account of its agreement with *A. gibbosus* in the choice of a sponge for its residence, and on account of its having, like that species, the metacarpus of exceptional length in all the pereopoda.

*On the Oviposition of the Queen Bee and Dzierzon's Theory.*

By M. J. PÉREZ.

According to a classical theory, which had its birth in Germany and which no one now-a-days disputes, a fecundated egg of the queen bee is a female egg, and all unfecundated eggs are male. The mother bee, it is said, can even lay at will an egg of one or the other sex. This faculty, which is exceptional in the animal kingdom, is explained by assuming that the bee, at the moment of the passage of the egg into the oviduct, can apply to it or not a certain quantity of the seminal fluid contained in the seminal receptacle. Nevertheless the organization of the generative apparatus of the bee does not differ essentially from that of the majority of female insects, to which no one has ever thought of ascribing the power of acting at pleasure upon phenomena which seem to be absolutely removed from the influence of the will.

The hypothesis was set up mainly to explain the fact, which has hitherto not been disputed, that an Italian female fecundated by a German male furnishes hybrid females (workers and queens) and pure Italian males. The opposite would be the case if a German queen were fecundated by an Italian male: so that a male egg would never receive the seminal baptism; a drone would never have a father.

Now I possess at this moment a hive, the queen of which, the daughter of an Italian of pure race, has been fecundated by a French male. The workers, in fact, are partly true Italians, others French, whilst others present a mixture, in various proportions, of the characters of the two races.

Being surprised to see in this hive certain drones, amongst others,

as dark as French males, when, according to the theory, all ought to have been Italians like their mother, I thought it necessary to examine these males more closely. I therefore collected 300 of them and examined them most carefully, obtaining the following statistics :—

151 were pure Italians.  
 66 were hybrids in different degrees.  
 83 were French.

From this it is evident that the drone eggs, like those of the females, receive the contact of the semen deposited by the male in the female organs ; and the theory of Dzierzon, proposed to explain an insufficiently ascertained fact, becomes useless if this fact is disproved.

It is easy to understand how an insufficient observation may have led to the belief that the drones, the sons of an Italian mother fecundated by a male of a different race, were all Italians. Of 300 males only 83 appeared to me to be strictly French, while 151 + 66 or 217, *i. e.* the great majority, being yellower than the French drones, might easily pass for pure Italians. Thus, in such cases, if a great number of males in a hybrid hive have not been carefully examined one by one, it is easy to understand how it might be believed that they all belonged to the same race as their mother, especially when the latter belongs to the handsomer and yellower race.—*Comptes Rendus*, September 9, 1878, p. 408.

*On the Cause of Buzzing in Insects.* By M. JOUSSET DE BELLESME.

Referring to the paper on this subject by M. Pérez, an abstract of which appeared in the last number of this Journal, M. Jousset de Bellesme has laid before the Academy of Sciences a statement of the results arrived at by him, and communicated on August 23 to the "Congrès pour l'Avancement des Sciences." He says :—

All insects in which the rapidity of vibration of the wing is above eighty vibrations [per second?] emit a perceptible sound provided their wing-surface is sufficiently extensive. The suppression of the wings does away with this sound.

The insects belonging to the orders Diptera and Hymenoptera alone have the faculty of emitting two sounds—that just mentioned, which is deep, and another, sharp sound, generally the octave of the former. This faculty is the essential characteristic of buzzing. When the wings are cut off a *Volucella* or a Humble-bee the deep sound is abolished, but the sharp sound persists ; the deep sound is therefore produced by the wing, while the sharp sound is independent of it.

Landois's opinion, according to which the sharp sound is due to the issuing of the air through the stigmata and the vibration of the valvules with which these are provided, is not tenable, seeing that